FIRE CLAYS *of* NORTHEASTERN KENTUCKY

By
WILLARD ROUSE JILLSON
Director and State Geologist

KENTUCKY GEOLOGICAL SURVEY
FRANKFORT, KENTUCKY
1926

The

Kentucky Geological Survey

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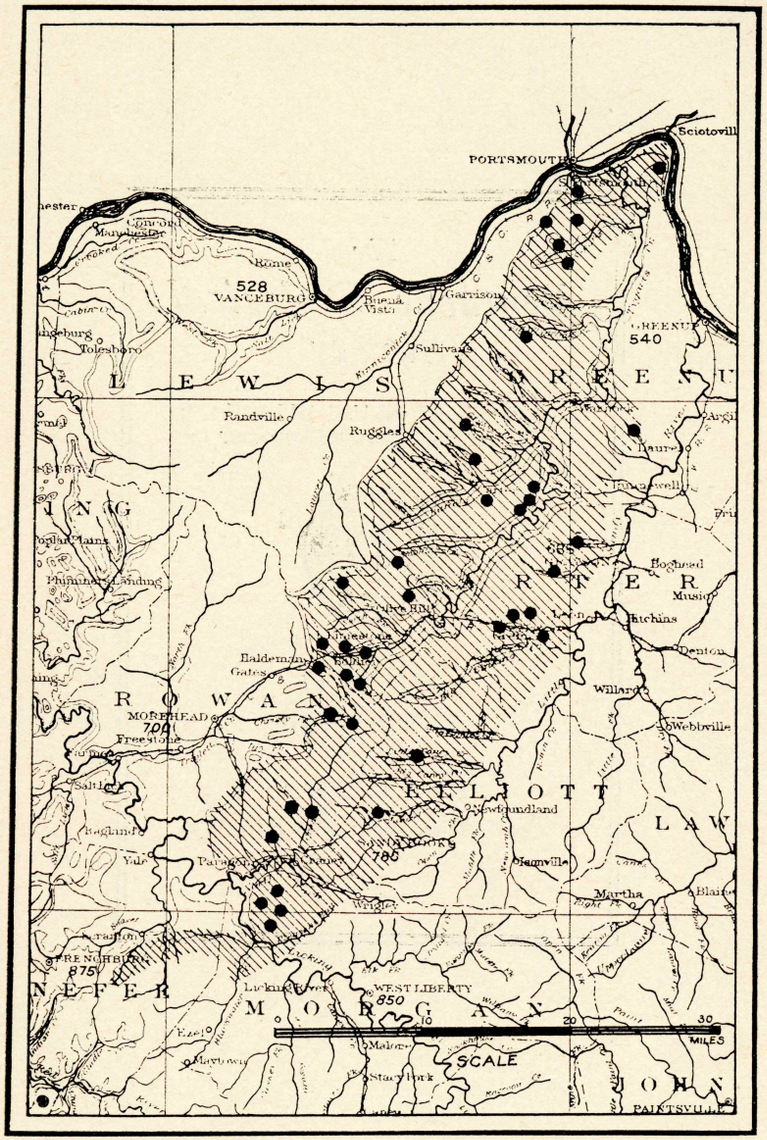

EASTERN KENTUCKY FLINT FIRE CLAY FIELD

This sketch map shows in outline the known extent of the high grade flint fire clays of the northeastern part of this State. The black dots show the locations of some of the most important mines and prospect openings. Prepared from personal field examinations and notes by the writer, correct to Jan. 1, 1926. Meridan lines indicate true North and South.

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Three Illustrations and One Regional Index Map of Eastern Kentucky's Fire Clay Resources

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Fire Clays of Northeastern Kentucky[1]

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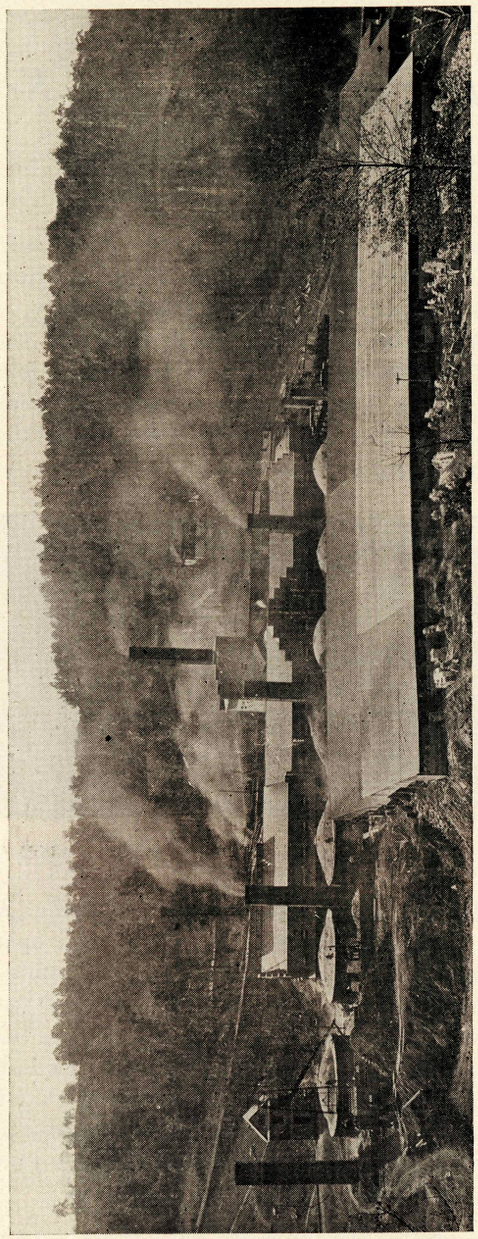
The close of the first quarter of the Twentieth Century is an interesting point from which to survey the development of the fire-clay industry of northeastern Kentucky. Twenty-five years ago these flint and semi-flint fire clays of the Olive Hill district and the plastic fire clays of the region immediately to the east adjoining Ashland were known and operated. Their discovery belongs to a chapter more remote in the history of mineral development of Kentucky.

LOUISVILLE FIRE BRICK WORKS, WITH DAILY OUTPUT OF 50,000.

Long before railroad construction between Ashland and Mt. Sterling made it possible to produce and operate the fire clays they had been described in the official reports of the Kentucky Geological Survey. In the latter part of the Nineteenth Century a real effort was made to reach them with adequate transportation, and with the completion of the Lexington division of the Cincinnati & Ohio Railroad, about 1883 the first flint fire clays found their way to the outside markets. Little was done, however, to exploit these large and superior deposits of flint fire clay for many years.

[1] Reprinted with revisions from the Manufacturer's Record, Baltimore, Md., Jan. 28, 1926.



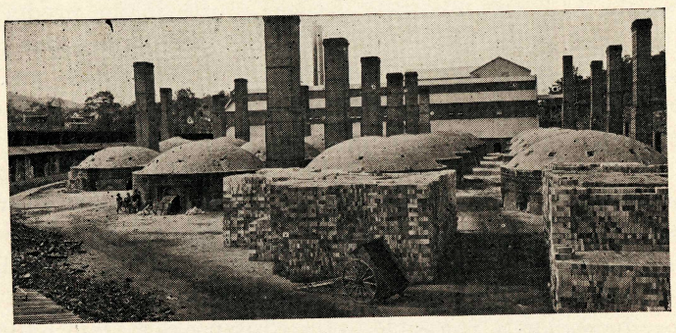
HAYWARD PLANT OF ASHLAND FIRE BRICK CO., WHICH PRODU CES AT THREE PLANTS 300,000,000 BRICK ANNUALLY.

In 1900 the volume and value of all the clay products produced in Kentucky was only $1,349,827, and the volume of the fire-clay industry was so small as to preclude individual consideration in the reports of the United States Geological Survey. In 1902 not more than 17,562 tons of crude fire clay were produced valued at $11,256. From this humble beginning the industry has grown until today the fire-clay products of the state are worth $5,082,679, based on a production of 120,053,000 brick. The rapidity of growth is well illustrated by the fact that a decade ago, in 1914, these products were valued at $1,075,158. In 1923 the number had risen to 84,977,000 brick, valued at $3,958,244. Kentucky produced fire-clay products it is thought will soon be worth something in excess of $6,000,000 annually. In 1914 Kentucky became fourth in the production of fire brick in the United States, and has maintained this position consistently, though faced by strong competition and although considerably removed from the large markets of consumption.

The Olive Hill district is the chief fire-clay producing region of northeastern Kentucky; it embraces western Carter, eastern Rowan, eastern Lewis, western Greenup and northwestern Elliott counties. Crude fire clay and brick production, however, is confined to a much smaller district,consisting of the territory immediately accessible to the Chesapeake & Ohio Railroad and its connection in Carter and Rowan counties. At present the occurrence of the high-grade flint fire clays of this district and plastic clays of the Ashland region farther east is well and generally known.

Stratigraphically these flint fire clays occur in Kentucky at the line of disconformity between the Mississippian and Pennsylvanian sediments. They are of Lower Coal Measure age (Pottsville). The heavy sandstone above them in the Olive Hill district is probably the same as the Massillon of Ohio and the upper Conoquenessing of Pennsylvania. This would make the overlying coal the same as the Anthony of Ohio and place the clays about midway between the Sharon or No. 1 and the Quakertown or No. 2 coal of Ohio and Pennsylvania. These clays are the same as the Sciotoville flint fire clays of Southern Ohio upon which a very important fire brick industry at Portsmouth and Sciotoville has flourished since about 1864.

Prospecting has been done over a wide territory, indicating the general delimitations of the field, which extends in a northeast and southwest direction from the vicinity of the Ohio River southwestward into northern Morgan and Menifee counties. The territory consists of about 600 square miles, much of which, however, due to erosion, is not underlain with flint fire clay. It is estimated that the area of actual flint fire clay might be perhaps about 25 or 30 per cent of the territory indicated. In the Ashland district the plastic clays are found outcropping over a broad territory, the area of which, including parts of Greenup, Carter and Lawrence counties, is estimated to be about 80 or 100 square miles.



OLIVE HILL PLANT WHICH PRODUCES DAILY 100,000 BRICKS.

The best plastic clay of the Ashland district occurs with the Vanport or Ferriferous limestone[2] near the base of the Allegheny. This clay is mined and burned in the vicinity of Ashland. The horizon is not difficult to locate or follow in the field, and many opportunities for the development of this particular clay are afforded at points adjacent to good rail transportation. It frequently exhibits flint lenses.

The increasing demand during the last few years for high quality flint fire clays has been developed largely by an increase in the metallurgical industries. In northeastern Kentucky the rapid increase in development of the flint fire clays has resulted from a normal expansion of industry in the United States. It has been advanced also by the work out of mines in the northern

[2] Frequently also called the Hanging Rock limestone.

Appalachian region. Since both of these factors must continue, the prospect for the expansion of the industry during the next decade is very bright. At present about a dozen plants are in operation. Several parties are engaged in field work by various companies outlining accessible and reserve deposits in Carter and adjoining counties.

It is apparent that Kentucky has to offer to the industry virgin flint fire clay deposits of high quality and large quantity broadly distributed. Short extensions from operating trunk lines will serve in most cases to open up these almost immediately accessible reserves and afford operating and manufacturing opportunities in the fire-brick industry of the first order.

The growth in number and capacity of production of the plants manufacturing fire brick of superior grade in this northeastern Kentucky flint clay field has been remarkable during recent years, and the prospect for further immediate enlargement of this important industry is very good. About 75 mines and commercially important prospects are operating or ready for operation at the present time in this district. The following fire brick plants are now operating:

1. Ashland Fire Brick Co., Ashland, Boyd Co., Ky. (2 plants). 2. Ashland Fire Brick Co., Hayward, Carter Co. Ky. 3. Clearfield Clay Products Co.,* Morehead, Rowan Co., Ky. 4. General Refractories Co., Hitchins, Carter Co., Ky. 5. General Refractories Co., Olive Hill, Carter Co., Ky. 6. Harbison-Walker Refractories Co., Olive Hill, Carter Co., Ky. 7. Kentucky Fire Brick Co., Haldeman, Rowan Co., Ky. 8. Louisville Fire Brick Works, Grahn, Carter Co., Ky. 9. Peebles Paving Brick Co., Fire Brick, Lewis Co., Ky. 10 The Chas. Taylor Sons Co., McCall, Greenup Co., Ky.

*Now producing drain tile and sewer pipe, with large flint fire clay deposits prospected and available for use with good rail transportation on property.